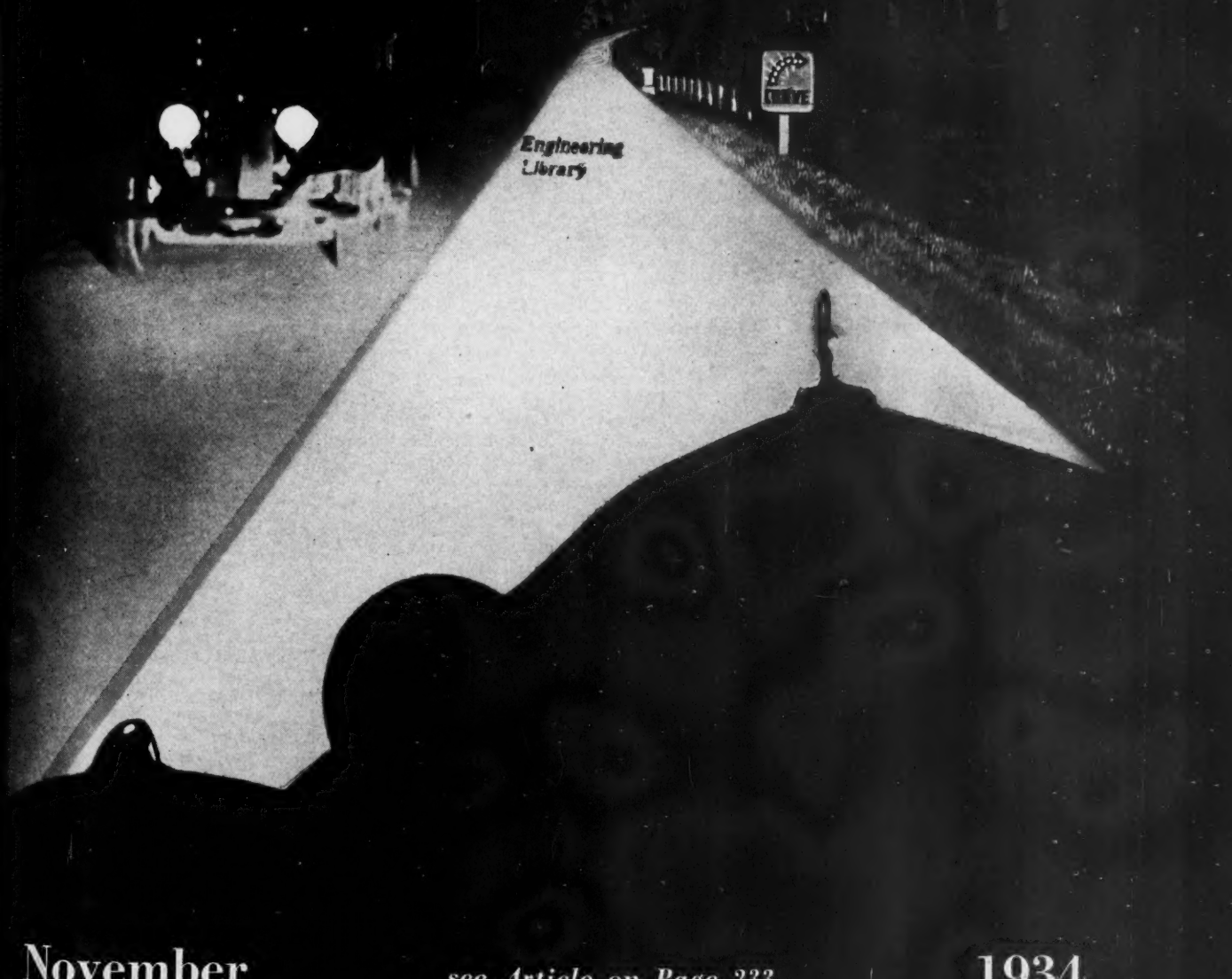
Industrial Standardization

and Commercial Standards Monthly



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Automobile "Performance Safety" Code Is Proposed

"Roadability" Standards Will Be Discussed at Conference in Response to Request

Wide Representation Is Sought Among Interested Groups of Makers, Users and Others

IN AN effort to reduce the terrific loss of life and the huge accident toll on the highways, the American Standards Association will call conferences of interested groups looking toward a national "performance safety" standard for motor vehicle safety.

The National Bureau of Casualty and Surety Underwriters has asked the Association "to initiate a project looking toward the creation of such standards," embracing all mechanical equipment which has a bearing on the safe operation of cars, buses, and trucks.

Motor vehicle manufacturers, automotive engineers, brake lining and parts manufacturers, motorists' associations, bus and truck operators, insurance interests, and state motor vehicle administrators will be asked to present their points of view. If the project appears to be feasible, a committee of representatives of these groups will be appointed as a committee to write a code of requirements for brakes, headlights, steering gears, tires, etc., under the procedure of the American Standards Association.

The Insurance Group, in making their request, pointed out that their statistics show that between 10 and 15 per cent of motor vehicle accidents are caused by faulty condition of the automobile, rather than by the fault of the driver himself.

Has Promoted Auto Inspections

"For a number of years," the statement said, "the National Bureau of Casualty and Surety Underwriters has had as one of its activities the promotion of the periodic inspection of automobiles in regard to the safety features of their equipment, and we have had a part in the initiating and carrying on of such work in some 20 states.

"These campaigns have amply demonstrated the effectiveness of inspection in reducing accidents; because the accident experience in the states where such campaigns have been held, during the period immediately following such inspections, has in general shown a marked improvement."

Although the reduction of accidents attributable

Brown Bros. Photographs

Night driving requires adequate brake performance to cope with unusually dangerous conditions

to faulty mechanical equipment is comparatively small, it has been shown that correcting such faults is the first step in educating motorists to drive with more caution. In the industrial accident field, it has been found that providing machinery with guards and other safety appliances is the necessary first step in waging war on the accident toll. A national standard for "roadability" of motor vehicles is expected to go far in curtailing reckless driving.

Death Toll is Mounting

Although motor vehicle fatalities showed an improvement during 1932, there has been a steady increase for the past two years, with 30,500 recorded for 1933 and an estimate of 36,000 deaths for this year, according to the National Safety Council.

During the present decade, 290,000 men, women, and children will have been killed in motor vehicle accidents, and 10,000,000 will have been injured.

Among the national associations and groups which will be invited to participate in the preliminary conferences to be held by the American Standards Association, will be the National Bureau of Standards, Society of Automotive Engineers, Automobile Manufacturers Association (formerly National Automobile Chamber of Commerce), National Conference of Street and Highway Safety, American Automobile Association, American Motorists Association, American Association of Motor Vehicle Administrators, American Trucking Associations, Inc., Motor and Equipment Manufacturers Association, National Standard Parts Association, National Association of Motor Bus Operators, National Association of Taxicab Owners, American Association of State Highway Officials, National Highway Users Conference, Rubber Manufacturers Association, Inc., and the U. S. Bureau of Public Roads.

Uniformity of headlight requirements is an important factor in any highway safety program

Request Standards for Automobile Headlights

A standard to define clearly what may be considered desirable performance of automobile headlights, and to set up standards of usage, inspection, and maintenance to assure continued good performance of headlights, has been requested by the National Bureau of Casualty and Surety Underwriters.

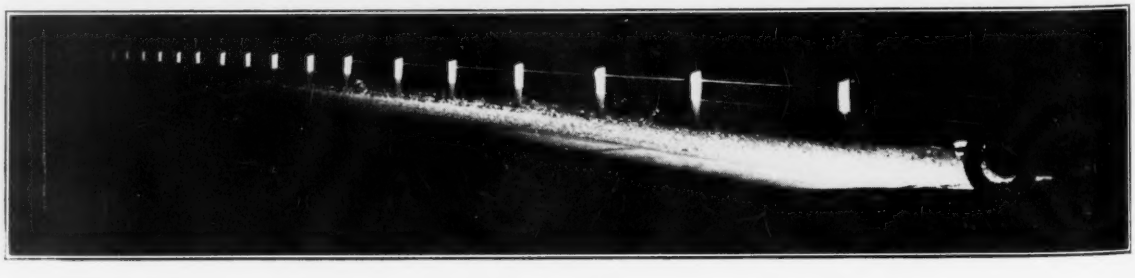
The request suggests that the automobile headlighting problem should be considered from the standpoint of the motorist, the administration and enforcement authorities, the motor car manufacturer and retailer, and the service station.

Standards of usage for the various light beams available, for headlamp cleaning and maintenance, for aiming, for focusing, for test equipment, and for frequency of inspection and test, are suggested for consideration by a committee which would be appointed to develop the standard.

Compulsory Automotive Safety Inspection Is Held in Memphis

On the sound idea that the time to prevent accidents is before they happen, and honestly motivated by the desire to proceed along these lines and at the same time avoid the pitfalls of graft and favoritism so patently related to many compulsory automotive inspection schemes, Memphis, Tenn., passed an ordinance in January requiring all vehicles operating in that city to be officially inspected at least once every six months by the Motor Vehicle Inspection Bureau.

Vehicles meeting the requirements are tagged with official certificates on the windshields, for which the nominal charge of 50 cents is made. Any car owner may have his vehicle tested as fre-



quently as he desires on the Inspection Bureau equipment without additional cost.

Inspection includes the most important safety factors—brakes, steering, alignment, headlights, tail light, windshield wiper, rear vision mirror and horn.

48,000 Vehicles Inspected

The 48,000 cars, trucks, buses, taxicabs and other motor vehicles of Memphis come to the Bureau at least twice a year for inspection. Many owners and drivers appear at more frequent intervals. A total of about 135,000 tests are made annually. Equipment and attendants can handle 1,200 or more tests a day. There is no confusion, seldom any waiting, and the Bureau has a file record of the safety condition of every motor vehicle in Memphis.

The Bureau does no repair work. No inspector or other employee is permitted to recommend or even suggest any particular repair shop or service. No advertising is permitted on or around the inspection premises.—*Motor & Equipment Manufacturers Association Bulletin, Oct. 8.*

Automobiles Blamed For Train Accidents

Twenty-eight per cent of the railroad-crossing accidents in 1933 were the result of motor vehicles colliding with the sides of trains, the Committee on Prevention of Highway Crossing Accidents reported to the Safety Section of the American Railway Association at its recent meeting in Cleveland. More than 92 per cent of all railroad-highway crossing casualties involved the operation of automobiles.

A reduction of 44 per cent in crossing accidents in June, July, August, and September, 1933, over the accident record for the same four months in 1928 resulted from a Careful Crossing Campaign, according to the report. In 1928 the accidents during these four months numbered 1,799, while in 1933 the same four months showed 990 accidents.

In order to continue to reduce railway-crossing accidents, the committee recommends:

1. Adequate and timely warning of the approach of trains to a crossing, and continuation of warning until crossing is reached.
2. Suitable standardized methods of protection at crossings to facilitate uniformity and public understanding of signals.
3. Periodical inspection of crossings to maintain them in sound travelable condition.
4. Presentation of crossing safety problem to school children.
5. Presentation of crossing accident situation before luncheon clubs and other gatherings.

British Color Council Issues Color Standards

A two-volume Dictionary of Color Standards, showing 220 colors in constant demand, to be used as a basic standard range of colors distinct from seasonal fashion ranges, has been issued by the British Color Council. The colors are shown on pure silk ribbon, with both a mat and a shiny surface, each color accompanied by its name, number, and code designation. A history of each color, with the various names by which each has previously been known, is included in the second volume of the dictionary.

A complete range of colors through all the hues of the spectrum, from red to orange, orange to yellow, and back through green, blue, and purple to red again, was prepared before making up the dictionary, and was the basis for the work. In addition to these spectrum colors, full cognizance was taken of definitely existing standards for certain colors, such as Wedgewood Blue, or those which can be matched to an average number of samples of some animal, vegetable, or mineral product.

Color names such as red, blue, brown, or pink, are used with qualifying adjectives because of the impossibility of standardizing these names. Such purely relative terms as light, pale, dark, deep have also been avoided because these degrees of value are too indefinite for use as standard names. A number of commercial terms, of which red oxide is an example, have not been used, as it is well known that no two lots of such materials have the same color value. For this reason it is suggested by the Color Council that the names of pigments should never be used as names for specific colors, as the terms have no significance in themselves.

The dictionary is based upon research which included a study of all previous collections of color ranges, issued from time to time during the past 50 years by various individuals, firms, or associations interested in color standards. Some of this previous work has been complete in certain color ranges, but much has been limited to the color problems of individual industries or to problems of particular colors.

Standard Colors for Paints

In this class may be included the British Standards Institution's Standard Schedule of Colors for Ready-Mixed Paints (BSI 381),[1] which shows 64 samples of paint colors, and includes a table of colorimetric values for the paint colors included in the standard.

[1] $2.50 per copy. May be borrowed or purchased from the American Standards Association Library.

Shrinkage of Pre-Shrunk Cotton Goods to Be Stamped on Fabric, Proposal Says

Proposed Specifications for "Percentage of Shrinkage" To Be Reported to Conference Soon, Committee Decides

A PROPOSED standard specification for the shrinkage of woven cotton yard goods will be reported early in November to an American Standards Association conference of textile trade and technical associations and consumers.

The Textile Shrinkage Conference of the New York Board of Trade developed the proposed specifications for cotton goods sold as "preshrunk," after two years of work.

The problem of informing the converter, garment manufacturer, distributor, and retail purchaser of the garment just what amount of shrinkage to expect, was submitted to a conference subcommittee appointed last year. After a number of meetings, this group has reported its findings to the general conference called by the ASA.

Details of the specifications provide methods for determining shrinkage and further require that the maximum amount of shrinkage shall be stamped on or firmly attached to the fabric. To cover the cases of special fabrics, where different amounts of shrinkage in warp or filling are necessary, provision is made for separately designating these facts.

The committee follows:

Wm. D. Appel, National Bureau of Standards
Oscar Berman, Union Made Garment Manufacturers Association
Robert S. Dempsey, Association of Cotton Textile Merchants of N. Y.
Ephraim Freedman, American Society for Testing Materials, American Association of Textile Chemists and Colorists and National Retail Dry Goods Association
M. Leo Gitelson, Textile Fabrics Association
Frank A. Lester, National Association of Finishers of Textile Fabrics
Ruth O'Brien, U. S. Bureau of Home Economics and American Home Economics Association
H. B. Robbins, Laundryowners National Association of the U. S. and Canada
H. G. Zervas, National Association of Finishers of Textile Fabrics

Among the technical groups which have made intensive studies of various phases of the problem of shrinkage of woven cotton yard goods are the National Retail Dry Goods Association, American Association of Textile Chemists and Colorists, National Federation of Textiles, National Association of Finishers of Textile Fabrics, American Society for Testing Materials, and the New York Board of Trade.

Consumers have been represented by the U. S. Bureau of Home Economics, National Bureau of Standards, and other Government agencies, General Federation of Women's Clubs, American Home Economics Association, the Laundryowners National Association of the U. S. and Canada, and other groups.

Many corporations and groups in the manufacturing, processing and distribution of fabrics and garments have been working on the problem in recent years. The Textile Shrinkage Conference has used much of this independent work in developing the proposed standard.

Research into the shrinkage of fabrics led the American Association of Textile Chemists and Colorists to adopt a method for determining the shrinkage in cotton fabrics, some years ago. Although based upon previous methods, this scheme obtained more concordant results, and less laboratory manipulation and time were required. The essentials of this test were incorporated into the Federal Specifications for Textiles; Test Methods (CCC-T-191, May 2, 1933) which is used by the Government in purchasing textiles.

Conferences with the National Bureau of Standards and the two textile technical societies resulted in complete agreement in adoption of these tests early in 1934. Several trade associations then adopted this test method as official. After it was adopted by the American Society for Testing Materials, it was approved as an American Standard by the American Standards Association.

New Gas Appliance Standards Determine Required Performance

The recently approved American Standard Requirements for gas-burning appliances, by means of which satisfactory operation and construction of such appliances are determined, have been published and are now for sale. The American Gas Association has charge of the work by means of which the standards were developed. The sectional committee which developed these standards is of the representative character required by the ASA. It acts also as the Approval Requirements Committee of the American Gas Association.

The new standards, and the price charged for each, are:

Approval Requirements for Central Heating Gas Appliances	40 cents
Approval Requirements for Industrial Gas Boilers	40 cents
Listing Requirements for Gas Burner Valves	30 cents
Approval Requirements for Gas Unit Heaters	40 cents
Listing Requirements for Gas Conversion Burners	40 cents

For the past nine years the Laboratories of the American Gas Association have been testing gas appliances for approval in accordance with nationally recognized requirements for construction and performance. Means have been provided whereby the consumer can determine at a glance whether or not an appliance has been tested and certified as complying with these standards. Every appliance approved by the American Gas Association Testing Laboratory must bear its Seal of Approval.

Copies of the standards can be purchased from the American Gas Association, 420 Lexington Avenue, New York, and from the American Standards Association.

Members of the American Standards Association ordering copies through the ASA office are entitled to 20 per cent discount. They are requested to deduct the discount when paying for the standards.

A.S.T.M. Will Publish New Tentative Standards

Sixteen new tentative standards have been approved for publication by the American Society for Testing Materials Committee on Standards. They will be included in the next issue of the A.S.T.M. Book of Tentative Standards, which will probably be ready for distribution early in 1935.

The newly approved tentative standards are:

Alloy-Steel Castings for Valves, Flanges, and Fittings for Temperatures from 750 to 1100 F (A 157-34 T)
Seamless Alloy-Steel Pipe for Service at Temperatures from 750 to 1100 F (A 158-34 T)
Sheet Copper-Silicon Alloy (B 97-34 T)
Copper-Silicon Alloy Plates and Sheets (B 96-34 T)
Copper-Silicon Alloy Rods, Bars and Shapes (B 98 34 T)
Fuel Oils (D 396-34 T)
Emulsified Asphalt (for Coarse Aggregate Plant Mixes) (D 397-34 T)
Emulsified Asphalt (for Retread and Coarse Aggregate Mixes) (D 398-34 T)
Emulsified Asphalt (Heavy Premix-Summer Grade) (D 399-34 T)
Emulsified Asphalt (Heavy Premix-Winter Grade) (D 400-34 T)
Emulsified Asphalt (Quick-Setting) for Penetration and Surface Treatment (D 401-34 T)
Woolen Yarns (D 403-34 T)
Worsted Yarns (D 404-34 T)
Sampling and Testing Structural Clay Tile (C 112-34 T)
Test for Separation of Liquid Asphaltic Products (D 402-34 T)
Definitions of the Terms Consistency and Plasticity (E 24-34 T)

Revise Standards for Combustion Engines

The revised Recommended Good Practice Requirements for the Installation and Use of Internal Combustion Engines (gas, gasoline, kerosene, fuel oil) and the Recommended Good Practice for the Installation and Use of Coal Gas Producers is available to supersede the edition of 1922. The section on Internal Combustion Engines was prepared by the National Fire Protection Association Committee on Gases and was adopted at the 1934 meeting of the Association. The section on Coal Gas Producers is reprinted from the 1922 edition without change.

Copies may be obtained from the National Fire Protection Association, 60 Battermarch Street, Boston, or from the American Standards Association Library.

Jarratt A. Morford

Jarratt A. Morford, member of the Safety Code Correlating Committee of the American Standards Association, and representative of the National Industrial Conference Board on two committees of the ASA, died October 4 at the age of 55. Mr. Morford was industrial relations expert and secretary of the New York State Economic Council. He had served for some time as industrial expert for the National Industrial Conference Board.

Mr. Morford was a member of the Taylor Society, the American Management Association, and the Chamber of Commerce of Queens.

What the States Require In Industrial Lighting[1]

by
E. J. Poor,
Chairman, Hygrade Sylvania Corporation

Lighting Codes Cover Workers' Protection, but Omit Factors of Production, Nation-Wide Survey Shows

NO BETTER investment exists for American industry today than that of adequate illumination. Good work is predicated on proper lighting. A full day's productive effort from workers, with minimum fatigue and maximum satisfaction, is possible only with sufficient light when and where needed. An enviable accident-prevention record is in large degree underwritten by good lighting throughout the industrial establishment. Are we not justified, therefore, in presuming that adequate illumination is a prerequisite of every industry in every state of the Union?

It was for the purpose of checking that assumption and ascertaining to what extent state departments of labor and industry interest themselves in adequate industrial lighting that our organization recently undertook a nation-wide survey of industrial illumination codes and regulations. The proper officials in each state were queried by means of a questionnaire. The fact that several follow-up letters were required to about one-third the states suggests a possible lack of interest in any impartial survey of industrial conditions. All states finally replied. A few reported no department charged with the supervision of industrial matters, but since they are mainly agricultural states their absence does not alter the general picture materially.

Only 11 States Have ASA Code

Of prime interest to us as lamp-bulb manufacturers is the matter of codes or regulations applying to minimum lighting requirements for factories, mills, and other work places. It would seem that illumination cannot be left to individual judgment or choice. A certain irreducible minimum of light is required for the welfare and safety of workers even if industrialists are insufficiently far-sighted to appreciate that good lighting is one of the soundest investments in their productive efforts. Yet, in answer to our question regarding codes or regulations, it appears that only eleven states follow and enforce the code of lighting for factories, mills, and other work places, approved August 18, 1930, by the American Standards Association, or its own equivalent. Six states report an inadequate code of their own. Twenty-six states, of which two are now working on lighting codes, have no code for the present. The balance failed to answer.

Lauds ASA Code

The ASA code of lighting referred to is generally considered a satisfactory standard to go by. It deals with the advantages of good illumination in its opening section. Indeed, it actually does a splendid "selling job" to those industrialists who may still hesitate to recognize the need for adequate light beyond complying with governmental regulations, if any. It deals with the measurement of illumination for industrial interiors. The avoidance of glare is particularly stressed. Wiring requirements as applied to adequate illumination are dealt with. All in all, it is a good general code to follow, either to the letter or as the foundation upon which to build special codes applying more particularly to basic industries of any given state.

Massachusetts, New York, Oklahoma, Oregon, Pennsylvania, and Wisconsin have their own lighting codes. An examination of these codes indicates their avowed purpose of setting minimum and specific illumination requirements not only for mere safety but also for minimum eyestrain and proper working efficiency. The Massachusetts lighting code, for example, (Industrial Bulletin No. 18, dated March, 1923), covers the general requirements—definitions of terms used; use of

[1] *Electrical World*, August 4, 1934.

standardized photometer for light measurements, etc.; intensities required, expressed in foot-candles at floor level and at the work, for various parts of a plant; the protection from glare; the distribution of light; entrance and exit lighting, and general notes and recommendations. It is interesting to note that the Massachusetts authorities are well aware of the detrimental effect of dust and dirt on luminaries and bulbs, for the code states that "to reach at all times the mandatory values required in Rule II, the initial illumination, when the equipment is installed, should exceed those values by at least 25 per cent". Thus a factor of safety is insisted upon. Other state officials point out in their answers that while new installations usually provide ample illumination, the light levels drop off in actual use because of lack of maintenance in many instances.

Many states discharge their lighting supervision and regulation simply by including a small section in their general labor or building code. Such regulations are simply blanket requirements, leaving to the inspectors an enormous latitude in what may or may not pass.

While so many states have no code or regulation applying to industrial illumination, officials express keen appreciation of the imperative need for adequate lighting where people are at work. A total of 37 have expressed themselves in favor of adequate illumination, the balance failing to answer.

In the absence of codes or regulations applying specifically to lighting requirements, most states are nevertheless interested and their inspectors insist on satisfactory lighting, at least for accident prevention, and often for the welfare of the workers, using their own judgment as to what constitutes the minimum requirement. In some states the Labor Department or equivalent works under a general law which gives inspectors power to order changes in ways, work, and machinery where same are found to be detrimental or dangerous to life, health, or limb of employees. It is under such a section or ruling, then, even though specific requirements may not be specified, that inspectors take up the illumination of factories and other working places. Minnesota is a case in point. Its labor officials report that while there is no standard code for lighting in force in that state, the law provides the necessary jurisdiction to see that places are lighted properly.

Education Is Needed To Improve Lighting

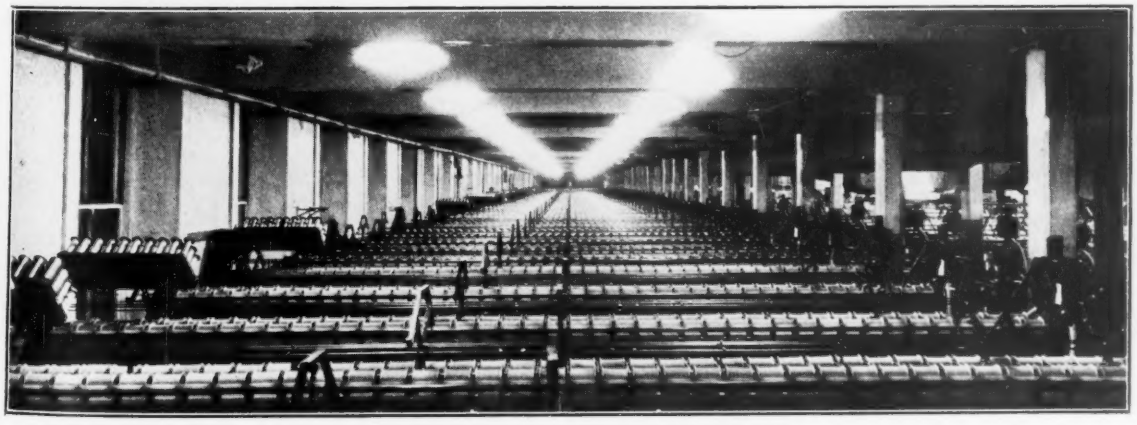
Too often adequate illumination is taken for granted by state labor departments. Only eleven states have codes and, in these, industry merely keeps within the law, not recognizing the economic value of light.

Spokesmen for 37 states are in favor of adequate illumination and the predominant suggestion made is that education rather than legislation would best bring industrial standards to their proper mark.

Accident Prevention Governs

Where illumination is left to the judgment of state Labor Department inspectors, without a code as a definite guide or yardstick, it would seem to this writer that lighting conditions are considered almost entirely from the standpoint of accident prevention. Inspectors do insist on sufficient light to avoid accidents. Otherwise, in most instances, the illumination must be at such low levels as to impose immediate eyestrain, for the question of adequate lighting for efficient production seems

Sanquoit Silk mills increased operating efficiency with this installation of 300-watt lamps



Eaton Spring Company found higher production, fewer accidents resulted from better lighting in its factory

Photographs courtesy of Illuminating Engineering Society

not to concern most inspectors. Therefore, the industrialist should not accept the Labor Department inspector's judgment, in those states where no code is in force, as applying to *adequate illumination from the production standpoint.* This thought is best epitomized by the statement from one of the non-industrial states to the effect that existing industrial illumination in that state is "only sufficient to prevent accidents by stumbling over objects or into pits. With constant thought on the meter, little attention is usually paid to eyestrain or increase of efficiency and output!"

Opinion Expressed	*No. of States*
Lighting conditions considered fair	11
Few places considered really good	1
Lighting conditions vary widely	4
Lighting conditions considered very good	5
Lighting conditions considered bad	2
No complaint with existing conditions	1
Lighting conditions considered good	5
Plenty of light, but improperly located and arranged	1
Largely a matter of plant owner's fancy	1
Only sufficient to prevent accidents	1
No answer	9
Cannot answer (no data available)	4
Answer too vague	3

As to the creation of a greater appreciation of adequate illumination in work places, several suggestions are forthcoming from State Labor Department officials. The one predominant suggestion is that *education*, rather than legislation, should be employed in bringing industrial illumination levels up to the proper mark, not solely for accident prevention or to meet any existing regulation, but rather for minimum eyestrain and greater and more efficient productive effort from workers.

Another general impression gathered from the answers is the lack of understanding on the part of many industrialists, even at this late date, concerning the proper use of light by means of correct fixtures and placement. "Many people still have the idea that too much light is harmful, or at least not beneficial," states the Industrial Commission spokesman of Wisconsin.

"They do not differentiate between conditions where a large amount of light is properly distributed and controlled, and those where light is improperly controlled. In other words, they believe that glare is often a direct result of having too much light because the light is poorly directed." Meanwhile, the New York State Labor Department spokesman states that "most of the difficulty is in the light and fixtures, the location and range, as well as failure to clean either the lamp bulbs or the fixtures," when inadequate light still persists despite minimum requirements.

Industry Does Not Know Lighting Values

The conclusion to be drawn from this survey is that American industries, taken as a whole, have not as yet come to appreciate the value of adequate lighting. Where state codes or regulations are in effect the minimum requirements are ob-

served, but only too often as a matter of meeting the law rather than by way of a sound investment in better workmanship, better satisfied workers, greater production. Too many industrialists still keep an eye on the electric meter, whereas the real cost is in labor charges. Few industrial plants appear to enjoy really adequate illumination in terms of minimum eyestrain. The correct use of light for proper distribution and the elimination of glare are still in the pioneer state.

American industries might well look to their light bill—not as rendered by the electric power company, for that is insignificant in terms of production costs, but in the more indirect terms of better workmanship, satisfied workers, maximum production, and an enviable accident-prevention record. Light is the best investment today for American industries.

State regulations should not be necessary to make keen industrialists see the point from a purely selfish standpoint. But to protect working people as a whole, and also industrialists frequently against their will, satisfactory codes or regulations should be in force throughout the country.

"Combustible" Changes Meaning In Fire Test Standard Revision

A revision of specifications for fire tests of building construction and materials, which changes the use of the term "combustible" in connection with the fire tests, has been approved as American Standard. The new document replaces an American Tentative Standard of the same title.

In previous drafts, the term "combustible" was defined as meaning that burning (which might be construed as either flaming or glowing) continued in the building or material being tested after the furnace fire was shut off. In the revised text the term "combustible" is applied where free-burning occurs during exposure to the test fire or where flaming continues after exposure.

In addition to the change in the use of the term "combustible" the standard has been revised primarily in an effort to clarify the text of the previous document.

Because insurance classifications have been derived from tests conducted in accordance with the 1926 edition of this standard, frequent revisions of the standard have been considered unwise due to the possible effect of such revisions on the insurance classifications. Revisions have been considered on several occasions in recent years by the committee in charge and by other groups particularly interested in this problem.

Approval of the revised standard is not intended to limit further development of fire tests. As part of the program of the American Society for Testing Materials Committee C-5 on fire tests of materials and construction, a subcommittee was organized two years ago to consider the formulation of standard methods for conducting fire tests on fire doors and perhaps on other kinds of fire stops designed to protect wall openings against the passage of fire.

The standard specifications for fire tests of building construction and materials was originally prepared by a committee under the joint leadership of the National Bureau of Standards, the Fire Protection Group, and the American Society for Testing Materials.

Copies of the standard can be purchased from the American Society for Testing Materials, 260 South Broad Street, Philadelphia, or from the office of the American Standards Association, at 25 cents each.

Members of the American Standards Association buying copies from the ASA office are requested to deduct their 20 per cent discount when ordering the standards.

Code Authorities Use Lighting Standards

Part 3 of the American Standard Code of Lighting: Factories, Mills, and Other Work-Places is being used by Code Authorities as minimum requirements for lighting manufacturing operations. This part of the American Standard was approved by the Committee on Standards for Safety and Health in NRA for adoption in NRA Codes.

International Accident Prevention Group Meets

The Correspondence Committee on Accident Prevention of the International Labor Office of the League of Nations will hold its seventh session in Geneva, Switzerland, November 22, 23, and 24.

The meeting will consider the following:

1. Protection of building workers.
2. Safety in the construction and use of elevators.
3. Protection of abrasive wheels.
4. Protective screens.

Cyril Ainsworth, Assistant Secretary of the American Standards Association, is a member of the committee.

Asked About Diving Equipment Standards

Standards for diving equipment were asked for in one of the most unusual requests received by the ASA Library. The request came from an insurance company. A standard used by the U. S. Navy and a Federal Specification for diving equipment were forwarded.

Armstrong Heads British Standards Institution

The election of Dr. E. F. Armstrong to the chairmanship of the British Standards Institution was recently announced. Dr. Armstrong has served as chairman of the Chemical Divisional Council of the British Standards Institution since the establishment of the Chemical Division in 1931. The success of the cooperative effort of the chemical industries through B.S.I. has been recognized in the advancement of Dr. Armstrong to the position of chairman of the General Council. Dr. Armstrong is past president of the Society of Chemical Industry as well as past president of the Association of British Chemical Manufacturers.

The British Standards Institution, which is steadily increasing its activities, recently emphasized the important position of the Chemical Divisional Council. Work is now under way on over 60 specifications in this field, of which 10 were initiated since January of this year. Up to the first of January this division had developed about 40 standard specifications affecting chemical and allied industries, not including specifications for paint and pigment products. At present some of the more important projects under way are connected with the possible standardization of hydro-extractors and the preparation of specifications for glass carboys and other containers for chemical products, as well as many projects for industrial chemicals.

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Standardization of Stoves And Parts in England

It is actually over 14 years ago that the National Gas Council appointed a committee to consider the standardization of stoves and parts. A standard cooker ultimately emerged, but no one hears much about it nowadays. That might have been the beginning of a national laboratory, but chilly blasts of apathy must have met the movement, for the seeds of national endeavor then germinated have since shrivelled into nothingness. But that does not mean that nothing has been done.

There has been tremendous development in the equipment and personnel of laboratories owned by individual undertakings and the appliance manufacturers. The weakness as we see it today is absence of a linking force welding these in common endeavor and putting the hallmark of a seal to the best of that endeavor. Maybe the obstacles are insuperable.

We can imagine that the hallmark of today might be inadequate certification for the higher efficiencies of tomorrow, just as the standard specifications for road tar have from time to time had to be amended. At least this may be said: There has never yet been determination by general conference of whether a national laboratory and certification of appliances is or is not desirable, whereas in America they have actually been in operation for nine years.—*Gas World, London, June 16.*

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A.S.M.E. Proposes Standard Hose Thread Dimensions

Proposed standard dimensions for screw threads of small hose couplings ranging in size from ½ inch to 2 inches have been submitted to the American Standards Association, for approval as American Standard, by the American Society of Mechanical Engineers.

The A.S.M.E. has accepted responsibility for the work of the committee on Hose Coupling Screw Threads which developed the proposed standard.

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Brick Manufacturers Are Associate Members

The Brick Manufacturers Association of America, which is represented on the ASA Committees on Fire Tests of Building Construction and Materials, and Recommended Practice for Brick Masonry, has joined the American Standards Association as Associate Member-Body.

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Vogt Company Joins ASA

The Henry Vogt Machine Company, Louisville, which manufactures refrigerating and oil refinery equipment, water tube boilers, forged steel valves and fittings, is now a Company-Member of the American Standards Association.

Immediate Use of Quality Grading Asked of Canners by Consumer Board

IN A report submitted recently to Division Administrator Armin W. Riley, commenting on the final report of the canning industry committee on labeling, the NRA Consumers' Advisory Board called for "immediate adoption of quality grading, instead of experimenting with the halfway measure."

The Board's report stresses the results reported from grade labeling of canned foods which has been practiced in Canada for 15 years. They say that improved marketing conditions due to grade labeling have brought benefits to both consumers and producers.

The report asserts that the so-called A, B, C grades would be simpler and more practical than the system of descriptive terms proposed by the canners, and that advance printing of labels under the latter would entail great expense. No claim is made that the Canadian grades so far established "meet proper requirements," but the Board believed Canadian experience should be studied.

Three alleged weaknesses, due to the present lack of grade labels, are cited;

Consumers do not have the benefit of making a test of what is bought;

Undesirable merchandise which is rejected by commercial buyers is passed on to the consuming public; and

Unfair competition between canners flourishes.

These conditions, the Board says, do not exist in Canada.

In conclusion, the report promises that "not only will the consumer benefit by the adoption of grade labeling, but the industry will also if it will consent to giving the consuming public a new and better deal."

The text of the report follows:

"The Consumers' Advisory Board believes that the Canning Industry, by recommending a system of descriptive terms on the labels of canned food products, has taken a first step which logically leads to eventual labeling of their products by quality grade. Out of practical considerations, however, the Board urges the industry to apply the results of its recent research into labeling requirements to the immediate adoption of quality grading, instead of experimenting with the halfway measure. The reasons urging the Board to this conclusion are, in addition to those set down in its joint report the following:

"The suggested attempt to give consumers information about canned products through descriptive terms involves agreement by canners on exactly what constitutes such factors as tenderness in peas, greenness in asparagus, etc. Obviously, unless such quality factors are to be measured by exact tests upon which all canners agree, one canner's conception of 'very tender' will disagree with another's, and the system will prove meaningless to consumers. Further, a number of such tests would have to be worked out for every kind of canned product.

"The project, in effect, would be piece-meal grading, with a separate test worked out for each factor involving quality, and a separate adjective put on the label to describe the results of the test.

Urges Use of A, B, and C

"To the Consumers' Advisory Board it seems much simpler to sum up these separate objective tests for quality in one familiar designation, such as Grade A, Grade B, or Grade C. To cite the above examples, the degree of goodness of the peas or asparagus—first, or other, pick of the crop, tenderness, color, freedom from blemish, length of cooking, etc.,—can be tested by samples and a grade rating given the pack. This would reduce the information on the label to: the brand name, the quality grade designation, such persuasive 'copy' as the producer wishes to use, the net weight of the contents and the size of the peas, or number of asparagus stalks.

"The practical matter of printing labels in advance of the packing season is called to the attention of the industry. Should its 'descriptive terms' plan be adopted, a multiplicity of labels would have to be prepared at large expense, in order to provide for seasonal variations in crops. This would not be the case were grade designations used, since any crop would perforce fall into one of the grades established.

"The few experiments in grade labeling conducted to date by canners in this country have not adequately tried out the plan, since their graded products have had to stand competition

from other products upon whose labels the canner might place any unsupported claim to excellence that suited his fancy. Nevertheless, grade labeling is now being done by a Maryland group of canners who express themselves inspired, not by altruistic thoughts for consumers, but because they believe grade labeling is an advance in merchandising methods.

"At the February hearing on the proposed code for the canning industry, it was pointed out that the Dominion of Canada has had a compulsory grade labeling act in operation for fifteen years. American canners, shipping products into Canada, manage to comply with the grading regulations on those exports while withholding grade labels from the packs sold inside the United States.

Asks Study of Canadian Plan

"The Canners' Board does not hold those facts evidence in themselves that the American canning industry should adopt the Canadian system entirely. Among Canadian packers themselves there is much comment that the specifications upon which the grades are based do not meet proper requirements. On this point the Consumers' Board is not prepared to pass judgment. It does, however, commend to the United States industry the experience in marketing and distribution of Canadian canners and retailers which seem to indicate clearly that consumer confidence in the grade labels has rewarded the canners with increased sales and a larger proportion of high quality sales.

"These experiences, if true, go directly against the present contention by the United States canners which expresses fear that quite the contrary results would obtain. The Consumers' Advisory Board, in view of strongly favorable reports from Canada on the practicality of the grading system there, believes that it is worth the American industry's while to make a thoroughgoing investigation of conditions in Canada which, for lack of such a study, must remain in the dim light of contentious assertion.

"The Consumers' Board has evidence of very recent date that at least some Canadian canners are wholly in favor of the grading Act; that canned food advertising has rather gained than suffered through candor in telling consumers what they are buying; that Government grading goes hand-in-hand with Government aid to producers and distributors in apprising the public of the merits of their products.

"The Consumers' Board naturally views such questions from the point of view of the buying public, wishing to see mouths fed properly at means within purses.

Sees Aid to Industry

"Our intent in urging the adoption of grade standards is to give the consumer protection and enable her to purchase canned foods judiciously by supplying her with some index whereby she can determine why she should pay a greater price for one can than another due to the fact that she is receiving a higher quality. The Board holds that quality grading will benefit the industry as well, for it will eliminate quality chiseling and put competition on a fairer basis. At the present time, due to the lack of grade designation on the label, (1) the consumer does not have the benefit of making a test of what she is purchasing, as does the commercial buyer, (2) undesirable merchandise which is rejected by the commercial buyers is passed on to the consuming public, and (3) unfair competition between canners flourishes.

"The above conditions do not exist in Canada. The consumer is receiving a fair degree of protection, the industry is clearly flourishing and expanding under the grading system, as has been clearly illustrated in a preceding portion of this report, and both the commercial buyer and the consuming public are receiving the benefit of government testing. Also, well-advertised brands have not been injured through the adoption of grade labeling, and the entire industry appears to be steadily improving under the system. Therefore this Board does feel that not only will the consumer benefit by the adoption of grade labeling, but the industry will also if it will consent to giving the consuming public a new and better deal."

European Railways Standardize Parts

Standardization of parts used for railway equipment in Italy is comparable to that of the Pennsylvania Railroad on its 11,000-volt single-phase stock, a recent issue of *Railway Gazette*, London, reports. In both instances the same armature has been used for nose-suspended and quill-drive twin motors.

Other constituents common to two or more classes of locomotives are individual axle drives, stators, master controllers, resistances, pantographs, contactors, auxiliary machines, wheel centers, and tires. Saving in cost of manufacture and in maintenance result from the adoption of parts of similar design, and similarity in the control apparatus of different classes of locomotives makes for more efficient work on the part of the drivers.

Standardization programs for the electric stock of the Southern Railway and the Underground system of the London Passenger Transport Board, Great Britain, also have been well planned, the article reports. Power equipment used by these lines includes components standardized by several manufacturers.

Diesel Fuel-Oil Classification Published for Comment by A.S.T.M.

Five Grades Are Set Up In Table Issued For Criticism

Manufacturers and users of Diesel engines, as well as petroleum refiners and distributors, have long felt the need for some classification differentiating types of fuel oils suitable for Diesel-type engines.

The classification shown in the accompanying table, covering five grades of oil, was developed by Technical Committee C on Fuel Oils (Including Diesel Fuel) of the American Society for Testing Materials Committee D-2 on Petroleum Products and Lubricants in an attempt to supply this need.

It is not the intention of the committee that this classification should be used as purchase specifications; but rather that fuels purchased be correlated according to the proposed classification in order to determine its usefulness.

A series of Diesel fuel-oil specifications should evolve as a result of this program. Criticism and comment should be forwarded to R. P. Anderson, Secretary, Committee D-2 on Petroleum Products and Lubricants, 50 West 50th Street, New York.

Diesel-Fuel-Oil Classification

Grade of Diesel Fuel		Flash Point, deg. Fahr.	Water and Sediment, per cent by volume	Viscosity, seconds			Carbon Residue, per cent by weight	Ash, per cent by weight	Pour Point, deg. Fahr.	Sulfur	Ignition Quality
				Saybolt Universal (at 100 F.)		Saybolt Furol (at 122 F.)					
		Min.[f]	Max.	Min.	Max.	Max.	Max.	Max.	Max.[h]		
No. 1-D[a]	A distillate oil for use in engines requiring a low-viscosity fuel	115 or legal	0.05	32	50	...	0.2	0.01	35	[i]	[j]
No. 3-D[b]	A distillate oil for use in engines requiring a medium-low-viscosity fuel	150	0.2	32	70	...	0.5	0.02	35	[i]	[j]
No. 4-D[c]	An oil for use in engines requiring a medium-low-viscosity fuel	150	0.6	..	500	...	3.0	0.04	35	[i]	[j]
No. 5-D[d]	An oil for use in engines permitting a medium-high-viscosity fuel	150	[g]	..	...	100	6.0	0.08	40	[i]	[j]
No. 6-D[e]	An oil for use in engines of special design for high-viscosity fuels and after engine manufacturers' recommendations only	150	[g]	..	...	300	10.0	0.12	40	[i]	[j]

[a] Grade No. 1-D is recommended for mechanical (solid)-injection engines of the high-speed type; in general, for engine speeds over 1000 r.p.m.

[b] Grade No. 3-D is recommended for mechanical (solid)-injection engines of the medium-speed type; in general, for engine speeds from 360 to 1000 r.p.m.

[c] Grade No. 4-D is recommended for air-injection engines, both two-and four-stroke cycle types, with speeds not over 400 r.p.m. Grade No. 4-D can be used for mechanical (solid)-injection engines with cylinder diameters over 16 in. and speed under 240 r.p.m., but approved heating equipment furnished by the engine manufacturer is recommended.

[d] Grade No. 5-D is recommended for air-injection engines of the slow-speed type; speed under 240 r.p.m. Manufacturer should be consulted for approved heating equipment.

[e] Grade No. 6-D is not regularly used for Diesel engines and is not recommended unless tested and approved by engine manufacturer. The purchaser should be informed regarding high maintenance cost of engines and operating problems involved in the use of this grade of fuel.

[f] Minimum flash point as stated or as required by local fire regulations, Fire Underwriters or state laws.

[g] To be inserted later.

[h] Lower pour points may be specified whenever required by local temperature conditions to facilitate storage and use, although it should not be necessary to specify a pour point of less than 0 F.

[i] So far as known, sulfur content need not be considered as regards combustion characteristics. However, a maximum of 2 per cent is suggested to purchasers operating engines in intermittent service, to limit corrosion.

[j] See discussion under Methods of Testing, Paragraph (*g*) Ignition Quality.

Eliminate Twist Drill Sizes In Proposed New Standard

A proposed American Standard for Twist Drill Sizes, which reduces by 59 per cent the number of sizes now listed by the manufacturers, has been submitted to the American Standards Association by the American Society of Mechanical Engineers, the Society of Automotive Engineers, and the National Machine Tool Builders' Association, all of which have given it their approval.

The proposed standard lists 110 twist drill diameters, size ½ inch and smaller, which is a reduction of 160 sizes.

The proposal was developed by a subcommittee of the ASA committee on Small Tools and Machine Tool Elements. The American Society of Mechanical Engineers, the Society of Automotive Engineers, and the National Machine Tool Builders' Association, which presented the proposed standard to the ASA, have taken the responsibility for the work of this committee.

Preferred Numbers Used in Wood Pole Standard

The applicability of a system of preferred numbers is emphasized by R. L. Jones, Director of Apparatus Development, Bell Telephone Laboratories, chairman of the ASA Sectional Committee on wood poles (O5). Mr. Jones said:

"Our problem was not one of establishing sizes for articles to be manufactured, but rather to take a continuous range of sizes as they grow and to select certain minimum limits to bound successive subdivisions. The limits selected approximate the '10 series' and we have the same number of classes that we would have had with an exact '10 series' scheme, so that, as far as economic use is concerned, we have followed the preferred number principle of dividing the total range into the smallest practicable number.

What we did was to use an approximate 25 per cent interval for the moments of resistance of poles corresponding to the subdivisions of the majority of the classes and then cut down the interval for the first two classes to meet special demands of pole-using interests who could not otherwise have been brought into harmony with the group as a whole."

von Schrenk Elected A.S.T.M. President

Dr. Hermann von Schrenk, Consulting Timber Engineer, St. Louis, Mo., and senior Vice-President of the American Society for Testing Materials, was elected to the office of President on October 9. This action was taken by the Executive Committee, to fill the vacancy caused by the death of W. H. Bassett who died July 21, soon after he took office as head of the Society.

The vacancy created by Dr. von Schrenk's election was filled by the appointment of H. S. Vassar, as senior Vice-President, Mr. Vassar having been elected a vice-president last June.

A. C. Fieldner, Chief Engineer, Experiment Stations Division, U. S. Bureau of Mines, Washington, D. C., has been elected junior Vice-President. No action was taken to fill the unexpired term of Mr. Fieldner as a member of the Executive Committee.

Federal Specifications for Sole Leather Being Revised

Revision of the Federal Specification for Sole Leather (KK-L-261) has been approved by the Committee on Leather Products of the Federal Specifications Board as a result of recent cooperative investigations, conducted at the National Bureau of Standards, relative to the effects of sulfuric acid on the life and properties of heavy leathers. The proposed revision has been distributed to interested industrial groups for their consideration.

In the research campaign it has been found that the deterioration of vegetable-tanned leather due to sulfuric acid starts at a pH value of about 3 independent of the kind of tanning material used, the aging conditions, and the amount of acid in the leather, etc. The same tendency to deterioration has been observed in tests on leather treated with oxalic acid.

The results of the research indicate that a pH measurement is a better criterion of harmful acidity than the Proctor and Searle method now used. It is believed that a minimum pH limit of 2.75 will ensure the procurement of satisfactory sole leather as far as acidity characteristics are concerned. The trade and technical interests in the industry assisted the research through an advisory committee.

Revisions Proposed for Petroleum Standards

In line with its policy of keeping Methods of Testing Petroleum Products and Lubricants current with technical developments, the committee in charge of this project proposed for publication as tentative revisions certain minor changes in the text of the following standards:

- Dilution of Crankcase Oils—Z11.29-1933 (A.S.T.M. D 322-33)
- Distillation of Gasoline, Naptha, Kerosene and Similar Petroleum Products—Z11.10-1930 (A.S.T.M. D 86-30)
- Precipitation Number of Lubricating Oils—Z11.30-1933 (A.S.T.M. D 91-33)
- Water and Sediment in Petroleum Products by Means of Centrifuge—Z11.8-1930 (A.S.T.M. D 96-30)

The changes proposed will stand as tentative revisions for at least a year before being considered for possible incorporation into the test methods. Copies of these proposed revisions may be obtained from the American Society for Testing Materials, 260 So. Broad St., Philadelphia, or from the ASA.

Bureau Will Study Sizes of Building Materials[1]

THE question of coordination of sizes of building materials has again been brought to the foreground through a proposal submitted to the National Bureau of Standards involving a study of sizes of manufactured building units and the fostering of a movement to bring about better coordination in abutting units.

Endorsements in support of the project from organizations and individuals prominent in the various branches of building design and construction point out the need for such cooperative effort in the interest of more economical and sound construction.

It is generally recognized that there is room for considerable improvement in the correlation of the elements that are used in building construction, especially those units which go to make up a wall system, such as brick, tile, block, windows, etc. It is also apparent that variations in basic dimensions cause confusion in design and assembling and result in increased costs and faulty construction.

Economy Would Result

These sentiments are definitely expressed by the chief of a prominent Federal construction bureau in a recent letter on the subject, "There is no question but that it would be decidedly advantageous to the work of this bureau, as well as to the building industry in general if such units could be standardized. It would result in simplicity of drawings and specifications, less confusion in their interpretation after contract, and in considerable economy." In the same connection a prominent Government housing official writes, "This project has our hearty support, to the extent that it eliminates needless waste and duplication, and provides a common-sense, practical plan of cooperation among all interested in supplying housing materials." Another says, "I believe that, especially in low-cost home construction, the availability of coordinated units will tend to materially lower the cost of construction and to simplify the work of the designer."

As indicated by the foregoing observations, it is the principal purpose of the coordination movement to confine activities to units for use in structures where economy in materials and labor are deciding factors, such as Government buildings (Federal, State and local), commercial structures, industrial buildings, mass production projects, low-cost housing, etc. For these reasons there is nothing in the proposed project that should be objectionable to architects on the basis of being contrary to their desires for freedom in design. The minor adjustments in sizes of units will be negligible and should have the desirable effect of simplifying matters for the designer, as has been previously pointed out. The architect or owner who wishes to use odd-sized brick or follow similar practices on particular structures for aesthetic or other reasons, should not be handicapped by the proposed program, since such materials as he may desire will still be available.

Since the architectural profession is in position to play a most important part in any program of coordination, the general proposal was submitted to the Institute where it was referred to the Executive Committee and endorsed by that committee as worthy of serious consideration by the members of the Institute.

It is apparent that if architects throughout the country will specify definite sizes of units which have been designed to fit with other units to form a well-knitted structure, a demand will be created for such approved sizes which will automatically insure close cooperation from those engaged in producing such materials. It is understood, of course, that such requirements need not be applied to those structures which do not fall within the scope of the coordination plan's objectives.

Brick Tolerances Modified

After widespread investigation into the many factors involved in the present complicated situation it develops that the most satisfactory results for all concerned might be obtained by taking the standard common brick dimensions (8 in. x 2¼ in. x 3¾ in.) slightly increased in depth (2.25 in. min. to 2.40 in. max.), together with a half-inch mortar joint as a basis of measurement for adjoining units. The slight increase in depth is needed to provide the desirable 1:1/3:1/2 ratios for brick laid in any position.

These combinations seem to provide the most satisfactory basis for design of adjoining units,

[1] *The Octagon*, July, 1934.

with the least disturbance to the manufacturing processes of the majority of industries. This is particularly true with regard to such materials as clay tile and concrete block, whose sizes are now based on standard brick dimensions.

The present lack of coordination and variations in sizes of building units, particularly between different sections of the country, should not be attributed to the vagaries of the manufacturers of such units. Deviations from the standard sizes adopted by the masonry unit industries, for example, can to a large extent be traced to the demands of users of those materials and, recognizing this situation, the manufacturers should not be too severely criticized for producing sizes which seem to fit the popular demand.

In order that a more stable unit might be maintained as a basis of measurement, the brick manufacturers throughout the country with the helpful cooperation of all concerned, should be encouraged to adhere as closely as possible to the standard dimensions adopted by that industry. With the assurance that brick sizes would remain constant, the leaders in other industries have indicated that the manufacturers of adjoining units will be glad to make such minor adjustments in their products as may be necessary to conform to the requirements of the correlation pattern.

For the convenience of the various departments of the Federal Government and other consuming organizations which may wish to purchase materials in keeping with the coordination plan when finally formulated, it is planned to compile lists of all manufacturers desirous of supplying such class of materials.

As the activity in general is being undertaken chiefly because it will result in economies in construction of buildings erected by tax-supported agencies, the proposal was submitted to most of the Federal Government departments engaged in building activities. Official endorsements of the project have been received from all of the departments consulted, and all have expressed a desire to cooperate fully in bringing the program to a successful conclusion.

Note: The action of the Executive Committee of the American Institute of Architects in this matter, at the May, 1934 meeting, was as follows:

RESOLVED, That the Executive Committee of the American Institute of Architects endorses and commends the program of the Bureau of Standards for the coordination of sizes of building materials, but the Institute wishes to be on record to the effect that the development of such standards should not serve to exclude or discourage the manufacture of special sizes of brick for special purposes.

A.S.T.M. Committees Have New Chairmen

New chairmen have been elected for several of the standing committees of the American Society for Testing Materials.

F. F. Farnsworth, Outside Plant Engineering, Bell Telephone Laboratories, is chairman of the committee on Corrosion of Iron and Steel.

Charles McKnight, The International Nickel Company, Inc., is the new chairman of the committee on Ferro-Alloys.

J. R. Townsend, General Development Laboratory, Bell Telephone Laboratories, Inc., was elected to the chairmanship of the committee on Die-Cast Metals and Alloys.

Sam Tour, Vice-President, Lucius Pitkin, Inc., is chairman of the committee on Light Metals and Alloys, Cast and Wrought.

R. A. Heindl, Chief of Refractories Section, National Bureau of Standards, is chairman of the committee on Refractories.

M. H. Ulman, Assistant Engineer of Materials, Pennsylvania State Highway Department, is the new chairman of the committee on Road and Paving Materials. This A.S.T.M. committee is the same in personnel as the ASA committee on Methods of Testing Road and Paving Materials.

T. Smith Taylor, Professor of Physics, Thistle Physical Laboratory, Washington and Jefferson College, is chairman of the committee on Electrical Insulating Materials, and

P. H. Bates, Chief, Clay and Silicate Products Division, National Bureau of Standards, was elected chairman of the committee on Research.

Classify Lead Pencils

Classes and types of wood-cased lead pencils have been established and detailed specifications given for length, shape, color, finish, packing, and other essential data for each type of pencil, with the approval by industry of Simplified Practice Recommendation R151-34, Wood-Cased Lead Pencils.

The Recommendation became effective on September 29, according to an announcement by the Division of Simplified Practice, National Bureau of Standards. The program will be subject to periodic review by a Standing Committee of the industry, under the procedure of the National Bureau of Standards.

Westinghouse Finds Huge Savings In Standardization of Materials[1]

Economies in Expense Materials Purchased Represented More Than $50,000 for Year

By

L. E. Schumacher

Superintendent, Works Standards Department
Westinghouse Electric & Manufacturing Co.

SIMPLIFICATION and standardization as expressed in the products, processes, and practices of industry are quite generally recognized as characteristics of our present economic system and the rapid growth of the past two decades are based largely on their extension and refinement. Their influence is felt now in every aspect of industrial management.

In the management of industrial plants one of the many items that requires constant supervision, and one too often overlooked, is the ordering of expense materials. Practically every plant will be found to have more than one method in use for the ordering of these materials and the heads of departments usually have their own ideas as to the materials they wish to use in their particular activity, such as, abrasive belts, cloths and papers, asbestos brake lining, burlap and paper bags, shop benches, lift truck boxes, corrugated paper boxes, metal tote boxes, bench lighting brackets, paint brushes, oil cans, cleaning, cutting and slushing compounds, factory chairs, supervisors' desks, gas burners, travelling ladders, paper towels, tool racks, blow torches, and numerous other materials.

The frequent ordering of small quantities of many different kinds and sizes of materials increases the expense, or so-called "overhead," since the cost of handling an order for a small amount starting with the issuing department and continuing on through the storekeeping, purchasing, receiving, and inspection departments is practically the same as for an order calling for a larger amount.

Not only do these various methods and preferences tend to confusion and delay, but additional storekeeping facilities are also required, together with the keeping of numerous extra ledger accounts and records.

Forms Works Standards Department

With the idea of correlating all of this information the Westinghouse Electric & Manufacturing Company organized the Works Standards Department a few years ago—first, to check the various types and classes of expense materials being ordered; second, to check the keeping of numerous duplicate stocks in the several manufacturing departments; and third, to simplify and standardize the methods and practices involved.

As a result of this activity the ordering of expense materials has been reduced to a very simple procedure; duplication has been practically eliminated by incorporating the information on standard sheets, and developing a standard book of expense materials in which these sheets, containing complete information on the materials, together with the number of the storeroom from which they can be drawn, have been placed. At the present time this book approximates 1500 items.

All requisitions for expense materials are checked with the information listed in the book and if the order is not in accordance with the standards, it is sent to the Works Standards Department where it is reviewed to determine if standard material can be used before the order is sent through to the Purchasing Department.

This arrangement tends to keep the purchase and use of expense materials in line with the standards set and gives the added advantage of preferential discounts for purchasing in larger quantities.

While collecting and arranging the information on expense materials similar questions arose in regard to the possibilities of simplification and standardization of the many types and classes of tools and gauges that were used in the several manufacturing sections and subsidiary plants;

[1] Abstracted from an article by Mr. Schumacher, Mill & Factory, March, 1934.

and working along the same general lines complete information on these items has likewise been placed on standard sheets and assembled in four additional books covering Tool Steel Information, Tool Standards and Stock Sizes, Gauges, and Tungsten Carbide Tipped Tools.

Copies of the Works Standards Books are placed in all purchasing departments, service shops, and storerooms as a guide for the purchase of standard materials and supplies. They are also placed in the hands of parties in all manufacturing departments and subsidiary plants who can use the information assembled to advantage in the ordering, handling, and use of the items shown.

New Studies Initiated

When new materials are developed, or new practices and methods suggested, a study is made, and if the material shows promise of improving the apparatus, or making a saving in the manufacture, a sufficient quantity is secured for best purposes.

If the material method of practice is of a type or class that can be used in several manufacturing departments and in the subsidiary plants, a Standard Subcommittee is appointed composed of representatives from the sections where the material or information will be used.

This subcommittee makes a thorough investigation of the subject and when completed a detailed report is made to the Main Standards Committee, which decides if a change in the standards set will be advantageous. If it is decided that a change should be made, complete information is arranged on standard sheets and these sheets are added to all Works Standards Books in the manufacturing sections and subsidiary plants.

154 Subcommittees Appointed

Since the appointment of the Main Standards Committee a number of years ago, a total of 154 subcommittees have been appointed covering all branches of activity; such as, belting, welding, rules for handling gas equipment, corrugated boxes, wire reels, identification of similar raw materials, eye bolts, shipping of apparatus, copper strap connections, carbon brushes, machine tool installation, and numerous other materials and subjects.

While it is practically impossible to evaluate the benefits of the standardization of expense materials, which has so far been accomplished, or to make any definite estimates as to the benefits which would result if a more complete program of simplification and standardization were carried out, the interest shown in all industries is sufficient evidence of a general belief in the benefits.

Simplification and standardization have been practiced by the Westinghouse Electric & Manufacturing Company ever since its organization, and the first attempt to record the information obtained was in 1906. Since that date the work has continued, covering purchasing specifications, process specifications, and all classes of production materials used in the apparatus. As a further step it was felt that expense materials should be standardized.

The arrangement has shown worth-while savings, the first year's showing amounting to $15,000. This has steadily increased, with the enlargement of this work, to a saving approximating $50,000 the past year. This saving has been accomplished with the present activity, and there is no doubt that it will increase very materially as business returns to normal.

Cancer Treatment Needs Standard Ray Measure

Suggestions for standardizing measurements of x-ray and gamma-ray intensities which should aid medical science in the treatment of cancer by radiation were advanced by Dr. Gioacchino Failla at the fourth International Congress on Radiology meeting in Zurich. Dr. Failla is chief physicist at Memorial Hospital in New York City and one of five American delegates to the congress.

The present unit for measuring x-ray and gamma-ray intensities, according to Dr. Failla, is the roentgen or R unit. Two ray beams are now compared by the amount of ionization, or atmospheric electricity, which they will produce in a small air chamber at fixed distances from the source.

For x-rays, where the length of the waves is not so short, the method works with some success. For gamma-rays, having much shorter wavelength, the ionization method of determining intensity does not work so well. This is due in part, Dr. Failla said, to the fact that what really needs to be known about a gamma-ray beam is its effect on body tissues.

What science now tries to do is to take ionization produced in air and apply the results to tissue which is 800 times more dense. For x-rays this discrepancy seems to make little difference but it does matter for the more penetrating gamma-rays.

Dr. Failla suggests that the intensity of gamma-rays be determined by the ionization they produce in liquid air rather than in gaseous air. Liquid air and human tissue do not differ greatly in density. It is to be hoped that conditions could thus be achieved approximating more closely those found in actual treatment.—*Science*, August 3.

Cotton Mill Advertises Tests Based on U. S. Specifications

Consumer interest in government standards for merchandise is being investigated by Pequot Mills. Salem, Mass., with an advertisement for Pequot sheets in October issues of five women's magazines.

Care was taken in preparing the advertisement to make sure the casual reader would not get the idea that the government had specified standards for sheets sold to the public and that Pequot is the only sheet to meet these specifications.

The headline reads, "Every single Pequot passed U. S. Government standards," and the complete text, exclusive of signature, follows:

"It's not remarkable when one or two selected sheets pass U. S. government specifications. But when 72 sheets, of a single brand, bought one by one from stores in 32 different states, all exceed the government standards—that is remarkable, because it shows amazingly consistent high quality.

"One brand of sheets has actually passed this severe ordeal! Every month for a year the United States Testing Company purchased Pequot sheets just as you would—from retail stores—72 sheets in all, from 72 stores. Each sheet was tested with painstaking care—*and every single one of those 72 Pequots exceeded all the U. S. Government standards.*

"The laboratory was not surprised at this result. Three years before, in an impartial comparative test, this same laboratory had tested Pequot against the eight other leading brands of heavy muslins—and discovered that Pequot was the strongest and most uniform of them all.

"These tests explain why housewives have found that Pequot sheets consistently *wear longer.*"

The agency said the advertisement does not reflect any sympathy with proposals that government agencies grade merchandise for the guidance of consumers. A sustained campaign on this subject is not contemplated.

The government standards used by United States Testing Company for reference in the Pequot tests are those currently specified in buying for government institutions. Pequot and other advertised brands generally are considerably above government quality.—*Advertising Age, August 25, 1934.*

Trace Modern Precision Methods To Accurate Type Measurement

The manufacture of type was one of the first instances of the employment of precise measurements and minute tolerances in quantity production, and the measurement of type widths was a forerunner of the methods of measurement by the Johansson blocks, says an article in *The Kalends*, published by the Waverly Press, September, 1934. It was through the printing craft, notably in type casting and molds, that medieval smiths first employed the accurate and minute measurements so common today in machine shop practice, which make possible interchangeability of parts by means of close tolerances. The casting machine of a modern print shop maintains the body and thickness dimensions of the type to within 0.0001 inch of the specified size.

While type dimensions have always maintained a standard accuracy within definite degrees of tolerance, other dimensional factors of printing have been neglected, with the consequence that it is the practice in some plants to use a yardstick to check the correctness of forms made up of this accurate type.

If such operations as type casting, page imposition, and make-up were held to sufficiently close tolerances, it is believed, the article continues, that hand fitting (make-ready) would be eliminated or greatly reduced in the assembly process, with the result that the finished product should be of a higher standard, and the production time should be materially reduced.

Many Companies Saved By Standardization

"Industrial history is replete with examples where the introduction of a standardization system has salvaged the finances of a concern which was inevitably headed for the rocks of bankruptcy and obliteration."—*R. E. W. Harrison.*

Change Nitrogen Provision In Coal Analysis Method

An editorial revision to the Standard Methods of Laboratory Sampling and Analysis of Coal and Coke has been approved by Committee D-5 on Coal and Coke of the American Society for Testing Materials, and takes effect immediately. The revision changes the stipulation for a definite percentage of nitrogen in bombs used in calorimetric determination and specifies instead "sufficient nitrogen for complete oxidation of the sulphur in the coal." The revision was necessary because different sections of the standard were contradictory in specifying percentages of nitrogen.

Recommends More Facts for Buyers

Recommendations from an Analysis of Consumers' Facilities for Judging Merchandise, recently published by the Electrical Testing Laboratories, call attention to suggestions made in 1931 which in 1934 are becoming increasingly familiar to business men, and the consuming public.

The recommendations are from a Report of the Subcommittee on Purchasing Procedure of the Committee on Household Management, President's Conference on Home Building and Home Ownership. The report was originally made public in 1931. It calls attention to the lack of facilities available to the household purchaser, and recommends the establishment of a simple standardized nomenclature for grading systems, quality specifications for consumers' goods, and factual advertising.

The recommendations follow:

1. That the Conference bring to the attention of the manufacturing and distributing groups the importance of improving the means for intelligent retail purchasing as a direct aid to home ownership and better housing in this country.

2. That wherever practicable, quality specifications be set up for consumers' goods, based on a study of the situation as it now exists and the actual needs of the consumer; that these specifications be established and regulated by the industries concerned under some such procedure as that now used for Commercial Standards; and that the essential factors covered by the specifications be given on commodity labels.

3. That, when the nature of the article is such that quality specifications cannot be designated on it, a grading system be used and grade designations be given on the labels, the basis for which will be readily ascertainable by the purchaser.

4. That steps be taken to set up a simple standardized nomenclature for grading systems, the terms of which will be self-explanatory and applicable to grades now in use and those developed in the future.

5. That advertising of consumers' goods be patterned more closely after present-day advertising of industrial goods with emphasis given to the dissemination of facts regarding the constituent materials, construction, and performance of the commodity advertised.

6. That the Conference urge retail stores to recognize their responsibility as buyers for the community and base their purchases on specifications and the results of testing laboratories; that this information be made available for the use of their clerks and customers.

7. That consumer education be directed toward teaching the technical information necessary for an adequate understanding of the performance of materials and constructions and their utilitarian and economic value for various household uses; that consumers be encouraged to form organizations in order to initiate and finance impartial laboratory testing of commodities when no other means of obtaining comparative data is available.

Railways Join in Central Association

The American Railway Association and the Association of Railway Executives have consolidated to form the Association of American Railroads. J. J. Pelley, president of the New York, New Haven, and Hartford Railroad Company, was elected president.

The new association will act in the capacity of a general staff for the railroads as a whole, taking the initiative in attacking the problems which confront the industry.

"The new organization constitutes an aggressive and determined effort to deal with common problems," the statement on policy says. "It is the purpose of this movement to include every phase of railroad transportation and to employ every constructive approach, not merely in the solution of difficulties, but in hastening and directing the improvement and development of the industry."

One of the five divisions which will assist in the technical developments of the industry is that on Planning and Research. The organization of a central committee of this nature was touched upon by R. L. Lockwood[1] in the October issue of INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY.

The president of the Association will devote his full time to its affairs, acting under the general supervision and control of a board of directors, consisting of himself and 14 railroad chief executives, five from the East, six from the West, and three from the South. L. A. Downs, president of the Illinois Central System, member of the Board of Directors of the American Standards Association, and Daniel Willard, president, Baltimore and Ohio Railroad, member of the Advisory Board of the American Standards Association, are on the Board of Directors.

The Association of American Railroads is a Member-Body of the American Standards Association.

[1] "Sees Need for Centralizing Railroad Standardization," R. L. Lockwood, Director, Section of Purchases, Federal Coordinator of Transportation. INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY, Oct. 1934, p. 223. Reprinted from *Harvard Business Review*, July, 1934.

Revisions of Petroleum Standards Are Approved

In accordance with recommendations from the Committee for Methods of Testing Petroleum Products and Lubricants and from the American Society for Testing Materials, which has assumed leadership in the work of the committee, the American Standards Association has approved revisions of the following standards, with designations as given:

Abridged Volume Correction Table for Petroleum Oils—Z11.1-1934 (A.S.T.M. D 206-34)
Cloud and Pour Points—Z11.5-1934 (A.S.T.M. D 97-34)
Sulfur in Petroleum Oils Heavier than Illuminating Oils—Z11.13-1934 (A.S.T.M. D 129-34)

Copies of these standards in their revised form are included in the Report of Committee D-2 on Petroleum Products and Lubricants of the American Society for Testing Materials. The report, a volume of 335 pages, summarizes all of the activities of Committee D-2 for the past year and also includes the complete text of the standards for testing petroleum and its products. Of the 53 methods of test published, 38 have been adopted by the A.S.T.M. as standard and 15 are published as tentative. Thirty-one methods of test and three methods of testing bituminous materials, all of which have been approved by the ASA, are included. A.S.T.M. standards or tentative standards for testing bituminous materials and electrical insulating oils are also included. The Standard Methods of Testing Electrical Insulating Oils—C59.2 (A.S.T.M. D 117-33) is among the group recently submitted by the A.S.T.M. for approval as American Standard as a result of the deliberations of the new Committee on Electrical Insulating Materials.

Tentative specifications for fuel oil and Diesel-Fuel-Oil, the latter of which is being published for information in response to urgent requests, are included. Tentative specifications for five types of emulsified asphalts are among the new standards appearing in this volume for the first time.

Definitions of terms relating to materials for roads and pavements and tentative definitions of terms relating to petroleum are a part of the publication.

Copies of the report may be obtained from the A.S.T.M., 260 South Broad Street, Philadelphia, or may be purchased or borrowed from the ASA. The price is $1.75 a copy.

Copies of the individual standards recently approved are available from the American Society for Testing Materials or the ASA at 25 cents each.

Propose Revision of Stock Keys Standard

A proposed new American Standard for Shafting and Stock Keys, consisting of a combination and revision of the four American Tentative Standards on Cold-Finished Shafting Diameters; Square and Flat Stock Keys; Plain Taper Stock Keys; and Gib-Head Taper Stock Keys, has been submitted to the American Standards Association by the American Society of Mechanical Engineers. The A.S.M.E. has charge of the work of the committee which developed the standard for Shafting and Stock Keys.

Asks ASA Approval on Code for Cleaning Devices

The American Society of Heating and Ventilating Engineers has submitted to the ASA the A.S.H.V.E. Code for Testing and Rating Air Cleaning Devices Used in General Ventilation Work, developed by its Committee on Atmospheric Dust and Air Cleaning Devices.

The Code was submitted for approval under the rules applying to the Existing Standards method, and the Society has asked to be designated method, and the American Society of Heating and Ventilating Engineers has asked to be designated as sponsor.

Continue Recommended Sizes For Calcimine Brushes

Widths and thicknesses of block sizes for dutch, semi-dutch, and baby dutch calcimine brushes, established by Simplified Practice Recommendation R121-31, were continued when the standing committee of the industry reaffirmed the recommendation without change.

Copies of the recommendation may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., or from the American Standards Association, for five cents each.

Grinnell Company Is ASA Member

The Grinnell Company, Providence, R. I., manufacturers of automatic sprinkler systems, thermolier unit heaters, thermoflex traps and heating specialties, unit coolers, and humidifying equipment has joined the American Standards Association as a Company Member.

Light

INCREASES	*DECREASES*
efficiency	*accidents*
accuracy	*liabilities*
production	*costs*

The American Standard Code of LIGHTING 20c

(factories, mills and other work places)

will help you to

save

"18 per cent of industrial accidents are caused by defective vision and deficient or unsatisfactory lighting."—*R. E. Simpson, The Travelers Insurance Company.*

"3 minutes saved per day per man pays the cost of lighting."—*Code of Lighting.*

(Members of the American Standards Association are requested to deduct their 20 per cent discount when paying for standards)

American Standards Association
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